

Semantic content of proxy-informant endorsed and non-endorsed lucid episodes in people living with dementia



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INTRODUCTION

- Unexpected periods of mental clarity¹, termed Episodes of Lucidity (ELs) have been observed in people living with dementia (PLWD).
- Through video observation studies, which are imperative to direct capture of ELs, suspected ELs are validated by proxy-informant caregivers; a subjective method.
- It is unclear why some suspected ELs are or are not ultimately endorsed.
- Semantic content of verbal output can be examined to determine what aspects lead an EL to be endorsed.
- **Research Question:** What are common features of semantic content and pragmatics of verbal output during high likelihood ELs endorsed by proxy-informant caregivers, and how do those features differ from suspected ELs that are not endorsed?

Key Definitions:

- **Sequence of verbal output:** stretch of spoken language that is preceded by silence and followed by silence or a change of speaker.
- **Global Coherence:** how the semantic units of discourse maintain the overall topic of conversation, defined at the event level. Global coherence is maintained when the sequences of verbal output do not fluctuate between unrelated topics.
- **Initiatory:** if a sequence is unprompted; not spoken in response to or reacting to another person's question or statement.
- **Elaborative:** if a sequence brings new information into the conversation that has not been previously stated by any participant in the discourse.

Events are Organized into One of Three Categories for Comparison:

- **Endorsed EL:** an event that has been identified by research staff or caregivers and endorsed by proxy-informant caregivers as a spontaneous return of abilities.
- **Suspected, Non-Endorsed EL:** an event that has been identified by research staff as a possible spontaneous return of abilities, but has not been endorsed by proxy-informant caregivers.
- **Comparator:** an event that is not a suspected EL that has been identified as having vocal output, or having similar environmental conditions as an endorsed EL.

METHODS

Participants have existing diagnosis of advanced dementia and are in a hospice setting, where audiovisual data is captured with camcorders.

21 events occurring in 2 participants (n=9) were suspected as ELs by research staff

- 5 endorsed ELs, validated by proxy-informant caregivers through a case review process are separated into 15 discrete events.
- 6 of the suspected events, in the same participants, were not endorsed.

10 events are selected as comparators.

Transcript data of endorsed, suspected but non-endorsed, and comparator events are investigated for specific features including global coherence and initiatory and elaborative communication.

- Events are evaluated for whether global coherence is maintained.
- Within an event, each sequence is characterized as:
 - initiatory or responsive
 - elaborative or non-elaborative (or unintelligible)

64.5% of events were independently characterized for reliability by another researcher with . % agreement.

Descriptive statistics were used to compare the rate/duration of specific event features.

REFERENCES

1. Nahm, M. (2022). Terminal lucidity versus paradoxical lucidity: A terminological clarification. *Alzheimer's Dement.*, 18: 538539.doi:10.1002/alz.12574

Proportion of verbal output, global coherence maintenance, and elaborative communication, but not initiatory communication, is greater in lucid episodes that are validated by informants.

RESULTS

Proportion of Events Maintaining Global Coherence

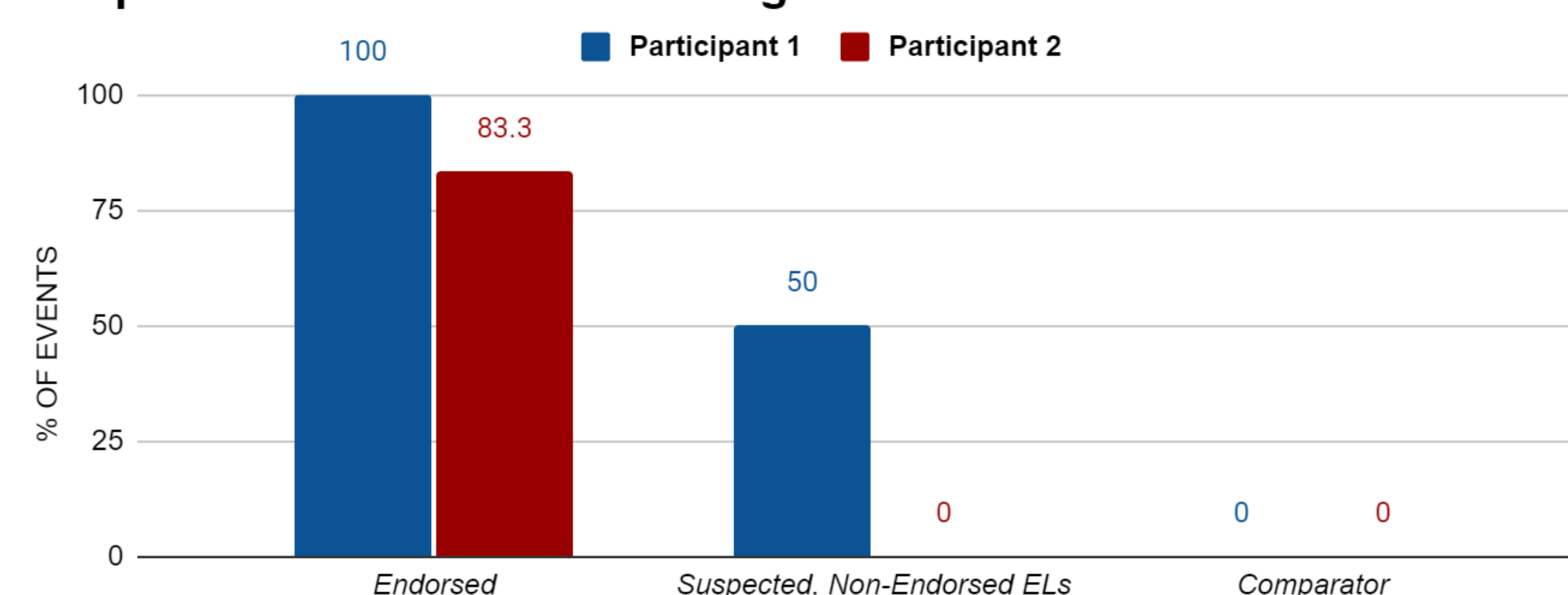


Figure 1: Percentage of events that maintain global coherence

Proportion of Verbal Output During Event

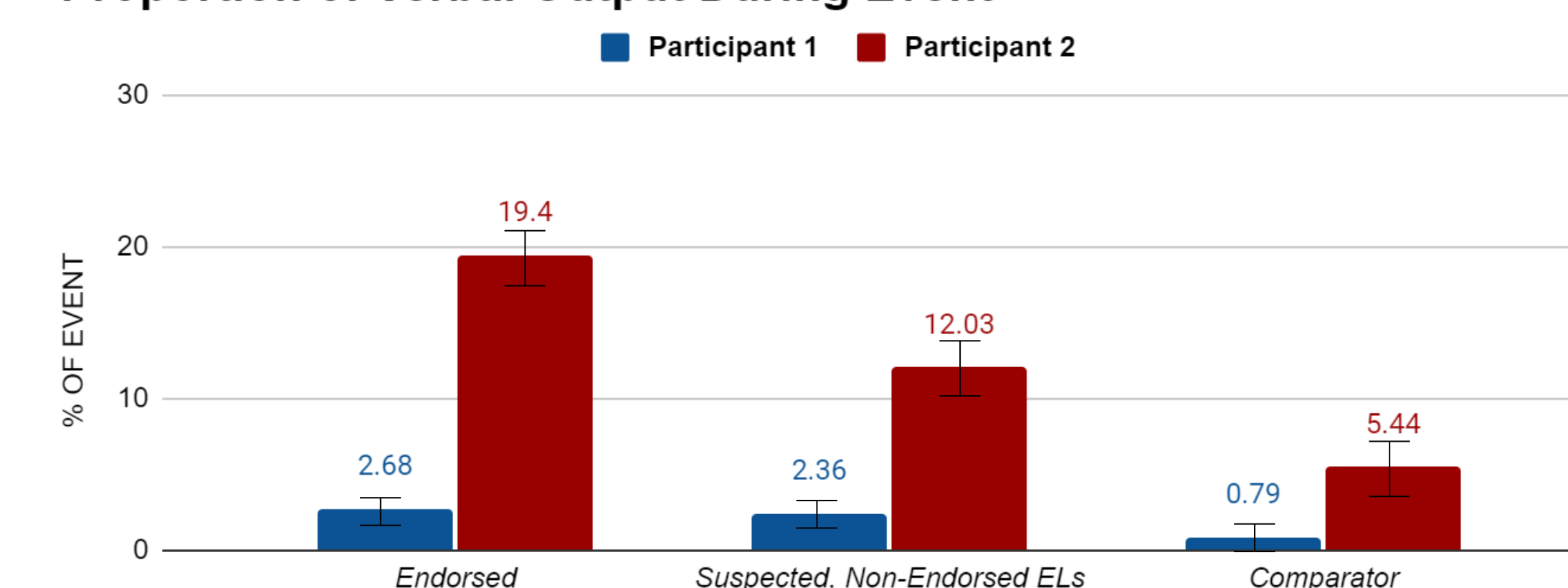


Figure 2: Average proportion of each event consisting of participant producing verbal output

Proportion of Initiatory vs. Responsive Sequences

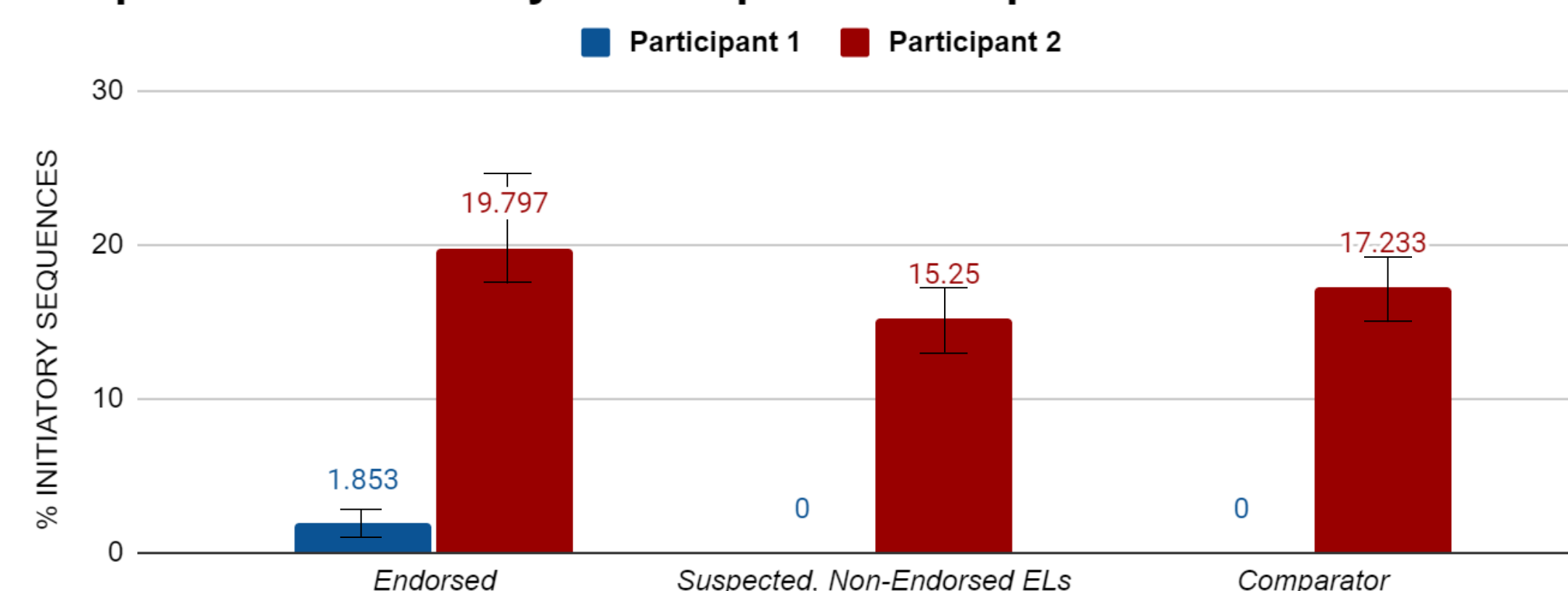


Figure 3: Average proportion of verbal output sequences characterized as initiatory across events

Proportion of Elaborative vs. Non-Elaborative Sequences

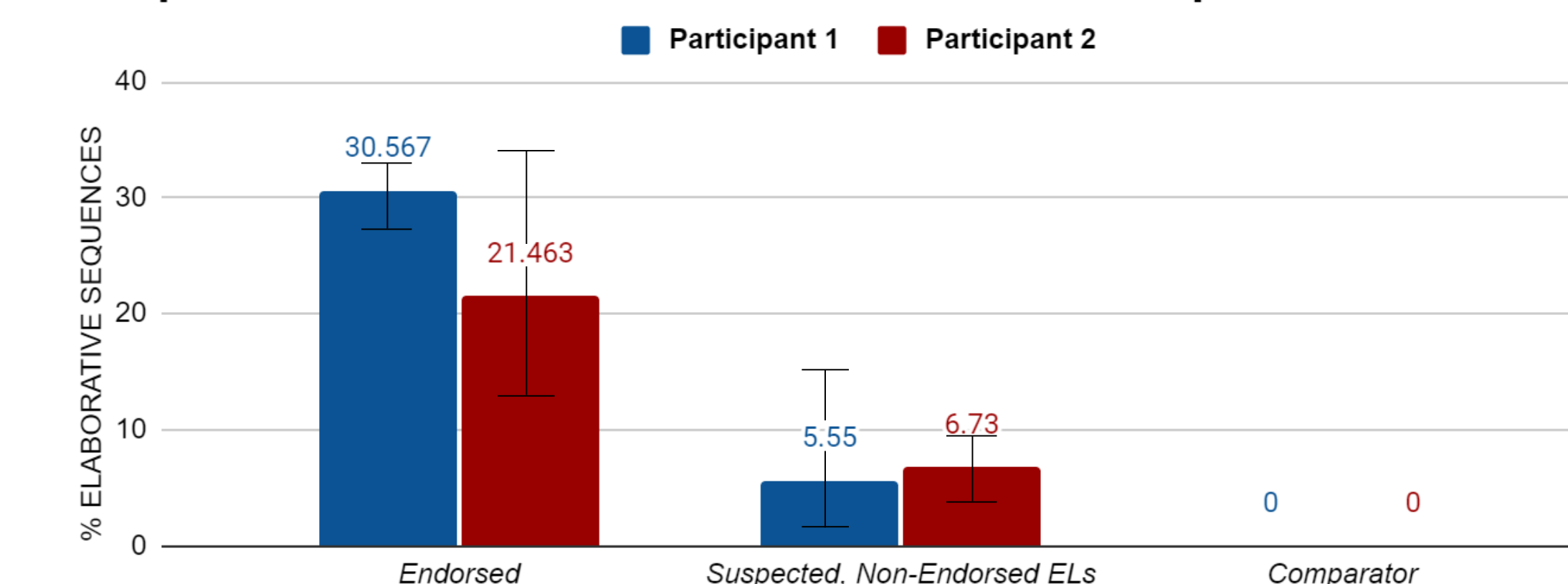


Figure 4: Average proportion of verbal output sequences characterized as elaborative across events

CONCLUSIONS

The most prominent differences between suspected, non-endorsed ELs and endorsed ELs occurred in elaborative speech, proportion of verbal output during events, and maintenance of global coherence.

- Participant 1 had 81.1% more elaborative sequences during endorsed ELs than suspected, and Participant 2 experienced a 68.6% increase.
- During endorsed ELs, Participant 1 produced 38.0% more verbal output than during suspected ELs, while Participant 2 produced 11.9% more.
- Every endorsed EL for Participant 1 maintained global coherence, while only half of the events that were suspected maintained global coherence. The only events that were described as maintaining global coherence for Participant 2 were also endorsed ELs.

DISCUSSION

Limitations include:

- Participant 2 often has “unintelligible” speech in another language, which made it difficult to make absolute conclusions on whether or not a sequence is elaborative and its relevance to the discourse.
 - 5.7% of sequences during endorsed events and 57% of sequences during suspected events were unintelligible, suggesting continuity of language as another factor that indicates a suspected EL will be endorsed.
- Speech is not the only factor of behavior that can be interpreted as a return of cognitive abilities and lead to endorsement.
- Varying baseline due to the nature of disease-certain abilities that were once normal can be considered remarkable and qualify as a spontaneous return of ability months later.

These findings suggest that elaborative language may be particularly salient to endorsement by informants, as 100% of the endorsed events across both participants included at least one elaborative sequence. Maintenance of global coherence was also common in endorsed ELs. This data provides another level of evaluation in identifying ELs.